FEMP Designated Product: Pre-Rinse Spray Valves

Leading by example, saving energy and taxpayer dollars in federal facilities

Purchasing Specifications for Energy-Efficient Products

Legal Authorities

Federal agencies are required by the Energy Policy Act of 2005 (P.L. 109-58) and Executive Order 13423 to reduce water consumption and its associated energy use in their facilities. Executive Order 13423 requires that agencies acquire water saving products labeled by the WaterSense[SM] Program or those designated by FEMP as being among the highest 25 percent for equivalent products.

Performance Requirements for Federal Purchases

Product Type	Flow Rate[a]	Cleanability[a]
Pre-Rinse Spray Valves	1.25 gallons per minute or less	26 seconds per plate or less

a) Based on *ASTM F2324-03: Standard Test Method for Pre-Rinse Spray Valves.*

Buying Low Flow Pre-Rinse Spray Valves

This *Specification* applies to pre-rinse spray valves used in commercial food service facilities such as cafeterias and dining halls. Product performance must be measured in accordance with *ASTM 2324-03: Standard Test Method for Pre-Rinse Spray Valves*. Other types of spray valves (i.e., those used to fill kettles, etc.) and products not tested in accordance with *ASTM 2324* are excluded.

The federal supply sources (see *For More Information*) for pre-rinse spray valves are the General Services Administration (GSA) and Defense Logistics Agency (DLA). GSA sells pre-rinse spray valves through its Multiple Awards Schedule program and online shopping network *GSA Advantage!* DLA offers them through its Defense Supply Center Philadelphia and online through DoD *EMall*. When buying from federal or commercial sources, specify or select products that meet the *Performance Requirements* shown above.

These requirements apply to the following: guide and project specifications; construction, renovation, energy service, and operation and maintenance contracts; lease agreements; and in all evaluations of solicitations responses. Buyers shall insert the standard clause from Federal Acquisition Regulation section 52.223-15 into contracts and solicitations that deliver, acquire, furnish, or specify energy consuming products for use in federal facilities. Model language to assist agencies with incorporating these requirements into procurement documents is available at www.eere.energy.gov/femp/procurement/eep_modellang.html. Agencies can claim an exception to these requirements through a written finding that no FEMP-designated product is life-cycle cost effective or meets the functional requirements for a specific application.

Buyer Tips

There is substantial difference in the performance of pre-rinse spray valves, even among models with the same flow rate, due to variations in product design and spray patterns. Products with high velocity spray patterns will show substantially better cleaning performance than those which simply employ a restrictor to reduce water flow. To ensure performance, FEMP requires that pre-rinse spray valves have a cleanability rate of 26 seconds per plate or less.

Some pre-rinse spray valves can be disassembled for cleaning and other maintenance. In areas with hard water, consider purchasing products with this feature.

User Tips

Scale buildup caused by hard water reduces the effectiveness of pre-rinse spray valves and lengthens washing times. Pre-rinse spray valves that can be disassembled should be taken apart and cleaned of this scale as needed. Since these products are inexpensive and easily interchangable with different manufacturers'

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assemblies, it is more cost-effective to replace severely clogged valves with new ones instead of "drilling out" the scale to restore water flow, a practice which lowers spray velocity, increases water use and reduces the overall performance of the valves.

Early Replacement

The Energy Policy Act of 2005 sets the maximum flow rate for pre-rinse spray valves at 1.6 gallons per minute (gpm) at 60 pounds per square inch (psi) of water pressure when tested in accordance with *ASTM F2324*. This performance standard went into effect January 1, 2006. Products predating this standard can use up to 5 gpm. With an estimated installed cost of $100, pre-rinse spray valves that meet this *Specification* will have a payback of approximately one year or less. Federal facility managers or energy engineers should consider replacing old pre-rinse spray valves with models that meet these *Performance Requirements* as soon as possible.

Cost-Effectiveness Example

Performance	Base Model[a]	Required	Best Available[b]
Water Use Only			
Flow Rate @ 60 psi	1.60 gpm	1.25 gpm	1.12 gpm
Annual Water Use	48,000 gallons	37,500 gallons	33,600 gallons
Annual Water & Sewer Cost	$216	$168	$150
With Gas Water Heating			
Annual Energy Use	330 therms	258 therms	230 therms
Annual Energy Cost	$330	$258	$230
Lifetime Operating Cost	$2,430	$1,900	$1,700
Lifetime Cost Savings	–	$530	$730

a) The flow rate of the *Base Model* just meets the current federal standards, based on *ASTM F2324* test conditions.

b) Data for the *Best Available* model was obtained from the Food Services Technology Center Web Site (see *For More Information*). More efficient products may have been introduced to the market since this *Specification* was published.

Cost-Effectiveness Assumptions

In the example above, pre-rinse spray valves are used an average 2 hours per day, 250 days per year which is typical for cafeterias in federal buildings. *Annual Energy Use* is calculated with a water heater system efficiency of 70% and a temperature rise of 58° F. The price for natural gas is $1.00 per therm and the combined water and sewer rate is $4.50 per 1,000 gallons. These utility costs represent the average for federal facilities in the US. *Lifetime Operating Cost* is the sum of the discounted value for *Annual Water & Sewer Cost* and *Annual Energy Cost* based on average usage and an assumed product life of 5 years. Future price trends for energy, water and sewer, and a discount factors of 3.0% are from the April 2008 version of *Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis* (NISTR 85-3273-24).

Using the Cost-Effectiveness Example

In the example above, the *Required* pre-rinse spray valve is cost-effective if its purchase price is no more than $530 above that of the *Base Model*. The *Best Available* model is cost-effective if its purchase price is no more than $730 above the *Base Model*.

What if my operating conditions are different?

The Food Services Technology Center (FSTC) has a Web-based cost calculator for pre-rinse spray valves that allows users to input different operating conditions. Go to www.fishnick.com/tools/watercost/ and enter the hours and days of operation, utility rates, water heater type and efficiency, and temperature rise and at your facility in the "User Input" section and then click on "Calculate." Values that better reflect your operating conditions and utility costs will be displayed in the "Results" section at the bottom of the page.

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For More Information:

EERE Information Center
1-877-EERE-INF or 1-877-337-3463
www.eere.energy.gov/femp/procurement/

Lawrence Berkeley National Laboratory provided market research and life cycle cost analysis in support of this *Purchasing Specification*.
(202) 488-2250

The Food Services Technology Center (FSTC) has an online database of pre-rinse spray valves that have been tested in accordance with ASTM 2323-03.
www.fishnick.com/saveenergy/femp/

FSTC in San Ramon, California conducted research and product testing on pre-rinse spray valves. FSTC is funded by California utility customers and administered by the Pacific Gas and Electric Company under the auspices of the Califonia Public Utilities Commission.
www.fishnick.com/

Federal Supply Sources:

General Services Administration
(816) 926-6760
www.gsa.gov/
www.gsaadvantage.gov/

Defense Logistics Agency
(Access to DLA's Web sites requires enhanced security measures. Civilian federal agencies may have difficulty accessing these sites.)
www.dla.mil/
www.emall.dla.mil/

Defense Supply Center Philadelphia
(800) DLA-BULB
www.dscp.dla.mil/

A Strong Energy Portfolio for a Strong America

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